

SEEDLING IRON-SUPPLEMENT AND ROOT-CONTROL CONTAINER

FIELD OF THE INVENTION

- 5 The present invention relates to a plant cultivation container, in particular to a seedling iron-supplement and root-control container, for increasing the total amount of practical root systems and providing a good condition for the survival, transplanting and rapid growth of seedlings.

10 BACKGROUND ART

The product "root-control container" in the prior art consists of three components, namely a bottom, a surrounding edge and a locking bar. The bottom has functions of preventing root rot and controlling the winding of taproots. The surrounding edge has a alternative
15 concave-convex design. Small holes are formed on the top of the outside of the surrounding edge, and the surrounding edge can not only increase the surrounding surface area but also provide a condition for the "air pruning" of lateral roots. The locking bar can be conveniently disassembled. A side wall of a "planting bag", also referred to as nonwoven fabric seedling bag, allows partial roots to penetrate through, prevents the
20 roots from growing strong, and makes fibrous roots grow well. As a large amount of fibrous roots are reserved in the bag, soil balls are small and are not easily loosened; the process of transplanting is rapid and is not affected by seasons; and the cost is lower than that of the root-control container.

- 25 Iron is a necessary macroelement for balancing plants in a cultivation system. It is also a macroelement which is maximally absorbed by plant root systems, and is generally absorbed in the form of water-soluble ferrous ion. As the ferrous ion is present in the oxygen-deficient environment in a deep depth of the soil, while aerobic bacteria is active in a shallow depth of the soil, the ferrous ions can be easily oxidized into insoluble ferric
30 irons by the aerobic bacteria and hence cannot be absorbed by shallow root systems of the plants; and the ferrous ion can only be absorbed by taproots in deep soil, or water-soluble iron fertilizer such as ferrous sulfate need to be sprayed on leaves of seedlings. The patent application CN1647649A discloses an iron-rich calcium supplement agent, a method of use and an application thereof, in which the prepared iron-rich calcium
35 supplement agent is directly sprayed, or dissolved in water and sprayed, to plant roots. There is not a solution for ferrous irons in the soil produced by anaerobic bacteria.

SUMMARY

In summary, the technical problem to be solved by the present invention is to provide a device for combining the advantages of a planting bag and a root-control container, modifying the structure of the root-control container, and constructing a local ecological environment in which irons are absorbed by plants.

In order to solve the above technical problem, a seedling iron-supplement and root-control container according to an aspect of the present invention comprises a cylindrical bag and a chassis root-control container disposed in the bottom of the bag; a side wall of the cylindrical bag is made of plastic woven bag material; the bottom is connected with the side wall by vertically and crosswise arranging strapping tape material; and strapping tapes include handle strapping tapes and bottom strapping tapes intersected therewith. The chassis root-control container is a polygonal housing basin; convex parts at the bottom are uniformly and closely arranged and similar to upright round eggshells in shape, such that the chassis root-control container looks like an egg blister package in shape; a housing has a thickness of 0.5 to 3mm, and forms an integral structure with a polygonal periphery, in which reverse convex parts are disposed at the bottom of the housing. Holes, namely so-called root holes, are formed at triangular gaps of adjacent convex parts on the bottom of the housing, and cooperate with growing media (nutrient soil) to form a partially enclosed anaerobic environment. As surfaces of the convex parts and the side wall of the root-control container are airtight, anoxic and anaerobic environments tend to be formed. The iron, taken as an activating agent, participates in a plurality of enzyme reactions, ferric irons are reduced to ferrous irons by the anaerobic bacteria, and the ferrous irons are absorbed by continuously grown root tips in the root holes.

The bottom of the cylindrical bag of the seedling iron-supplement and root-control container is strapped by the strapping tapes to form a pair of handles for moving and lifting; and a round steel wire for supporting is coated at an upper edge of the cylindrical bag, to make an opening of the cylindrical bag be circular.

The chassis root-control container of the seedling iron-supplement and root-control container is hexagonal. When the chassis root-control container is mounted into the cylindrical bag, certain gaps are required for ventilation, so that the chassis root-control container has a height of 1/2 to 1/3 of the cylindrical bag, has a thickness of 0.5 to 3mm, is formed by suction molding or injection molding of polypropylene (PP), and has a demolding taper.

The above combination form can be made into different specifications as required, and the cylindrical bag and the chassis root-control container are respectively stacked for the convenience of transport. Compared with the prior art, the seedling iron-supplement and root-control container has advantages below: a local anaerobic environment can be provided; the root system do not grow around easily; the operation is fast and easy; and the price is cheap.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view illustrating the combination of a cylindrical bag and a chassis root-control container of the seedling iron-supplement and root-control container according to an embodiment of the present invention.

FIG. 2 is a perspective view of a bottom as shown in FIG. 1.

FIG. 3 is a plan view of the bottom as shown in FIG. 1.

FIG. 4 is a left sectional view along a line A-A shown in FIG. 3.

DETAILED DESCRIPTION OF THE INVENTION

Detailed description will be given below to the present invention with reference to the accompanying drawings and the embodiments.

As illustrated in FIG. 1, the seedling iron-supplement and root-control container consists of a cylindrical bag 1, a chassis root-control container 2, curved handle strapping tapes 3 and a shaping steel wire 4. The handle strapping tapes 3 as shown in FIG. 2 are integrally connected with the handle strapping tapes 3 as shown in FIG. 1. A bottom strapping tape 31 is vertically intersected with the handle strapping tapes 3, and the number of the strapping tapes is determined by the specification of the root-control container. The connection means of the strapping tapes may be hot pressing, or alternatively, a plurality of tabs may be sewn by plastic woven bag material and then the strapping tapes penetrate through the tabs and are fixed. The size of root holes 21 is also determined by the specification of the root-control container.

FIG. 3 is a plan view projected from the bottom. Ventilation gaps between the hexagonal chassis root-control container 2 and the cylindrical bag 1 can be seen from FIG. 3. The

proportional relationship between the height of the chassis root-control container 2 and the height of the cylindrical bag 1 may also be seen from the left sectional view of FIG. 4. Moreover, a preservative film 5 added in FIG. 4 shows another embodiment. The preservative film 5 may be provided with a plurality of irregular holes, and it may cover the
5 chassis root-control container 2. The preservative film 5 may simulate a biomembrane on the surface of the chassis root-control container 2, for achieving better effects.

The chassis root-control container 2 in the seedling iron-supplement and root-control container according to the present invention is an integrally formed container with
10 alternate concaves and convexes; the convex parts are arranged to form a plant belt; and no water is accumulated on the surfaces of the convex parts, so that concave parts become reservoir beds. The using forms of the combination of the chassis root-control container 2 and the cylindrical bag 1 should fall within the protection scope of the present invention.

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CLAIMS

- 5 1. A seedling iron-supplement and root-control container, comprising a cylindrical bag and a chassis root-control container disposed in bottom of the bag, characterized in that a side wall of the cylindrical bag is made of plastic woven bag material, the bottom is connected with the side wall by vertically and crosswise arranging strapping tape material, the chassis root-control container is a polygonal housing basin, convex parts at the bottom are uniformly and closely arranged and are similar to upright round eggshells in shape, 10 holes are formed at triangular gaps of adjacent convex parts, at bottom of a housing, and the housing has a thickness of 0.5 to 3mm and forms an integral structure with a polygonal periphery, in which reverse convex parts are disposed at the bottom of the housing.
- 15 2. The seedling iron-supplement and root-control container according to claim 1, characterized in that the bottom of the cylindrical bag is strapped by strapping tapes from the bottom to up so as to form a pair of handles, and a round steel wire for supporting is coated at an upper edge of the cylindrical bag, to make an opening of the cylindrical bag be circular.
- 20 3. The seedling iron-supplement and root-control container according to claim 1, characterized in that the chassis root-control container is hexagonal, has a height of 1/2 to 1/3 of the cylindrical bag, and is formed by plastic suction molding.

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